

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1. (Currently Amended) A method for producing an anisotropic magnetic powder, comprising:

- providing a starting material comprising an SE-TM-B alloy, wherein SE is a rare earth element and TM is a transition metal, said starting material comprising a magnetic material with an anisotropic orientation and an average grain size of less than 4-0.1 mm, said starting material further comprising a hard magnetic content greater than 90% by volume, and foreign phases smaller than 0.5 mm in size, and a crystal size and particle size such that the crystal size is at most 75% of the particle size;

- producing a mixture comprising a  $TM_xB$  phase in said starting material by a hydrogenation/dehydrogenation treatment without homogenization treatment at high temperate comprising:

- a first hydrogenation comprising heating said starting material comprising said SE-TM-B alloy under a hydrogen pressure sufficient to produce a hydride of the SE-TM-B alloy, and then

- a second hydrogenation comprising exposing the hydride resulting from said first hydrogenation to a hydrogen pressure and an elevated temperature sufficient to induce a phase transition to produce said  $TM_xB$  phase, and afterward

dehydrogenating and producing a reverse phase transition to produce an anisotropic magnetic powder having a crystallographic orientation that matches a crystallographic orientation of said  $TM_xB$  phase and that has a fine and uniformly granular microstructure.

2. (Currently Amended) A method for producing an anisotropic magnetic powder from magnetic scrap material to be recycled, comprising:

- providing a starting material comprising an SE-TM-B alloy, wherein SE is a rare earth element and TM is a transition metal, said starting material comprising magnetic scrap metal having an average grain size smaller than 0.1 mm, and a crystal size and a particle size such that the crystal size is at most 75% of the particle size,

- producing a mixture having a  $TM_xB$  phase in said starting material by a hydrogenation/dehydrogenation treatment, comprising:

- a first hydrogenation comprising heating said starting material under a hydrogenation pressure sufficient to create a hydride of the SE-TM-B alloy, and then

- a second hydrogenation comprising exposing the product of said first hydrogenation, comprising exposing the product of said first hydrogenating to a hydrogen pressure and at elevated temperature sufficient to induce a phase transition to produce said  $TM_xB$  phase, and afterward

- dehydrogenating and producing a reverse phase transition to produce an anisotropic magnetic powder having a crystallographic orientation that matches a

crystallographic orientation of said  $TM_xB$  phase and that has a fine and uniformly granular microstructure.

3. (Previously Presented) The method according to claim 1, in which the starting material comprises a permanent magnetic material having a hard magnetic phase  $SE_2TM_{14}B$ , wherein SE is a rare earth element and TM is a transition metal.

4. (Previously Presented) The method according to claim 1, wherein the magnetic material comprises at least one of the elements Fe, Ni or Co as the transition metal TM.

5. (Previously Presented) The method according to claim 1, wherein the magnetic material further comprises additives including amounts of C, O, N and/or S.

6. (Canceled)

7. (Canceled)

8. (Previously Presented) The method according to claim 1, further comprising grinding, and screening or fractionating the starting material before the hydrogenation/dehydrogenation treatment.

9. (Currently Amended) The method according to claim 1, wherein the starting material comprises a magnetic powder ~~having a crystal size and a particle size such that the crystal size is at most 75% of the particle size.~~

10. (Previously Presented) The method according to claim 1, further comprising cleaning the starting material.

11. (Previously Presented) The method according to claim 10, wherein said cleaning comprises annealing the starting material in vacuo, in a noble gas or in hydrogen before the hydrogenation/dehydrogenation treatment.

12. (Previously Presented) The method according to claim 1, further comprising heat treating the magnetic powder after the hydrogenation/dehydrogenation treatment.

13. (Previously Presented) The method according to claim 1, further comprising homogenizing the magnetic powder by blending.

14. (Previously Presented) The method according to claim 1, further comprising screening the magnetic powder produced so that it is freed of a coarse fraction having particles greater than 0.5 mm in size.

15. (Currently Amended) The method according to claim 1, wherein the magnetic powder has a fraction of particles having a size  $< 32 \mu\text{m}$  that is less than or equal to 10% of the particles.

16. (Currently Amended) The method according to claim 1, wherein the magnetic powder is coated.

17. (Currently Amended) The method according to claim 1, wherein B is partially replaced by C.

18. (Currently Amended) A plastic or metal bonded magnet manufactured using a magnetic powder produced by the method according to claim 1.

19. (Original) The magnet according to claim 18, having an energy product  $BH_{\text{max}}$  greater than  $80 \text{ kJ/m}^3$ .

20. (Previously Presented) The magnet according to claim 18, having a degree of orientation equal to or greater than 70%.

21. (Previously Presented) The method according to claim 18, having a degree of filling of magnetic fractions of at least 63 vol%.

22. (Previously Presented) The method according to claim 1, wherein  $\text{TM}_x\text{B}$  is  $\text{Fe}_2\text{B}$ .

23. (Previously Presented) The method according to claim 2, wherein  $TM_xB$  is  $Fe_2B$ .

24. (Previously Presented) The method according to claim 1, wherein SE comprises yttrium.

25. (Previously Presented) The method according to claim 2, wherein SE comprises yttrium.

26. (Previously Presented) The method according to claim 10, wherein said cleaning comprises removing foreign phase fractions.

27. (Previously Presented) The method according to claim 1, wherein said dehydrogenating and producing a reverse phase transition comprises a first desorption carried out under hydrogen pressure, followed by a second desorption carried out under high vacuum.

28. (Previously Presented) The method according to claim 12, wherein said heat treating comprises treating at a temperature up to 600° C under a noble gas atmosphere or under a vacuum.

29. (New) A method for producing an anisotropic magnetic powder, comprising:

- providing a starting material comprising an SE-TM-B alloy, wherein SE is a rare earth element and TM is a transition metal, said starting material comprising a magnetic material with an anisotropic orientation and an average grain size of less than 1 mm, said starting material further comprising a hard magnetic content greater than 90% by volume, and foreign phases smaller than 0.5 mm in size;

- producing a mixture comprising a  $TM_xB$  phase in said starting material by a hydrogenation/dehydrogenation treatment without homogenization treatment at high temperature comprising:

- a first hydrogenation comprising heating at a first temperature said starting material comprising said SE-TM-B alloy under a hydrogen pressure sufficient to produce a hydride of the SE-TM-B alloy, and then

- a second hydrogenation comprising exposing the hydride resulting from said first hydrogenation to a hydrogen pressure and an elevated temperature above said first temperature and sufficient to induce a phase transition to produce said  $TM_xB$  phase, and afterward

- dehydrogenating and producing a reverse phase transition to produce an anisotropic magnetic powder having a crystallographic orientation that matches a crystallographic orientation of said  $TM_xB$  phase and that has a fine and uniformly granular microstructure.

30. (New) The method of claim 29, wherein said first temperature is below 600 °C and said second temperature is in the range of 760 °C to 860 °C.